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SHARING TEACHER EXPERTISE THROUGH SUBJECT SPECIALISATION (IN THE PRIMARY SCHOOL) (STESS)

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Abstract

This paper reports on a study carried out to try out subject specialisation by teachers in the primary school, as a possible alternative to the conventional approach where one teacher teaches all subjects to a class. The study resulted from the observation that, in spite of mounting evidence suggesting the need for primary school teachers to specialise in one or two subjects only, little is being done along these lines, in Zimbabwe and in most countries the world over. Nine teams in two rural schools, three urban former Group B (formerly for blacks before independence) and three urban former Group A schools (formerly for whites before independence) in Zimbabwe, practised subject specialisation (by the teachers) for three school terms and an evaluation was carried out at the end of the three terms. The study sought to find out whether the main stakeholders i.e. pupils, teachers, school heads, and parents would prefer the approach, whether better learning and teaching would result, and the problems and advantages to be met. The findings suggested that the majority of the stakeholders prefer the approach, and that better learning achievement appeared to accrue. Some problems and advantages of the approach were also identified.

Introduction

Change and dynamism in response to new challenges and new realities have been widely acclaimed as the hallmark of curricular practice. In Zimbabwe, efforts of innovation can be seen in such projects as the Better Schools Programme (BSP), Better Science Teaching (BEST), and indeed, in the now old Zimbabwe Science (ZIMSci) project, and the Zimbabwe Integrated Teacher Education Course (ZINTEC). Such efforts are commendable as they enable the education system to meet the

different demands that are brought about by new social realities. McBeath et a.l (1998) say this about teaching:

> The nature and complexity of teaching requires that teachers are involved, on a day-to-day basis, in evaluative activities, reviewing their work and modifying their practice accordingly. In teaching, as in many other professions, the commitment to critical systematic reflection on practice, as a basis for individual and collective development, is at the heart of what it means to be a 'professional' (JNUT, 1998, 1, p.9).

It is encouraging to observe that "... schools in many parts of the world are directing conscious efforts towards trying to improve what they do" (Mortimore, 1998, p.3). However, deep down below the surface turbulence, most education systems have undisturbed still waters harbouring archaic practices that have long outlived their rationale for existence, but are still taken as givens which are never questioned. A typical example of such issues in Zimbabwe is the question,

> Why should primary school teachers teach all the subjects of the school curriculum to a class, while secondary school teachers specialise in one or two subjects only? Is it still true that the primary school teachers can cope with the academic demands of all the subjects on the primary school curriculum?

Generations of teachers come and go, constrained by these practices, but taking them as unquestionable parameters within which they must operate. This can be frustrating. Clarke (1998) quotes Nonzamo, a frustrated young South African teacher who says:

> Ja... you end up getting used to what you are doing, and you are not facing challenges, so you don't bother to think hard about things. You just think on a low level, and it's just enough to carry on... " (Kuiper, 1998, p.101).

This paper reports on a study carried out to investigate the possibility of improving the quality of teaching in the primary schools through the use of subject specialisation on the part of the teachers. It is thus called Sharing Teacher Expertise Through Subject Specialisation (STESS).

The Problem

Although there is no research evidence to support it as the best practice, most primary school systems, the world over, have stuck to the practice of one teacher teaching all the subjects of the school curriculum to his/her class. This approach has survived in spite of the growing complexity in content and teaching approaches of the subjects of the primary school, and the need for each teacher to focus his/her staff development efforts on a particular subject. The boredom that young pupils experience, having to concentrate on the same teacher for four or more hours, and the danger of a poor teacher being the only one to which an unfortunate class may have to be exposed in all subjects for the whole year, do not seem to have interested education planners and administrators.

The observations above, led the researcher to investigate the problem: Would subject specialisation at primary school level be a viable alternative to the present practice, where one teacher takes the class in all the subjects? Subject specialisation, in this paper, refers to a team of teachers, pooling their classes, and each one teaching one subject to all the classes in the pool.

The study assesses the viability of this approach by seeking answers to the following questions:

1 Does subject specialisation promote certain aspects of good teaching on the part of the teachers?
2 Would pupils prefer subject specialisation to the traditional approach where one teacher takes all the subjects in his/her class.
3 Which of the two approaches would the teachers, teachers-in-

charge, school heads, and parents prefer?
4 Does subject specialisation improve examination results?
5 What problems are associated with subject specialisation in the primary school and how could they be averted?

Literature Review

A review of relevant literature reveals the increasing demands of the primary school curriculum on the teacher's corpus of knowledge and skills. It shows high levels of inadequacy felt by qualified primary school teachers in meeting the requirement to teach all the subjects that their pupils learn.

In Zimbabwe, the primary school teacher is expected to teach all the 10 or more subjects of the primary school curriculum, that is, English, Shona/Ndebele, Mathematics, Environmental Science, Religious Education, Social Studies, Home Economics, Physical Education, Art and Craft, Music, and any other minor ones that arise from time to time. Many teachers will not have learnt these subjects themselves, to 'O' level. College courses cannot be adequate for the teacher to master all these subjects.

Conventional teacher education in Zimbabwe follows what John Elliott (1993) calls the "Rationalist", or "Higher Education-Based paradigm". In this paradigm, the student teachers spend long periods at college, learning the theory on how to teach, and also, increasing their content of what they will actually teach. Tabachnich and Zeichner (1991) call it the "Academic Tradition". One weakness of this paradigm is that it has no post-college phase of structured training. Once they graduate, the teachers are supposed to cope with the demands of the school situation on their own, without further support from the college. If they discover certain demands for which they were not trained at college, only their level of commitment and initiative will determine the extent to which they will apply themselves to the new learning requirements.

As only a minimum of five 'O' level passes, including English, have, for a long time, been the basic qualifications into teacher education in Zimbabwe, some students have entered college without themselves having passed some of the primary school subjects at 'O' level. Common examples are Mathematics, basic sciences, Home Economics, Art, Music, and Agriculture. Further to this, analysis of the primary teachers' colleges curricula has revealed that students, on average, spend one hour a week, over six school terms, learning each of the 10 or more applied education areas (i.e. the pedagogics as well as the additional content of each subject they will teach). This only gives them about 60 hours on each subject on the whole course (Ndawi, 2002). Sixty hours of studying both the academic and pedagogical content of a subject might not suffice to prepare a teacher to effectively teach the subject. Indeed, some teachers have been deployed in geographical areas where they cannot speak, let alone teach, the vernacular language of the pupils. We cannot expect these teachers to competently teach some of these subjects that their pupils learn.

Murray Elliot (1985) questioned the ability of primary school teachers in England in general, to teach all the subjects of the school curriculum. Elliott further reports another striking finding. In British Columbia, on a Mathematics assignment, Robitaille (1981) found that 16% of the elementary teachers had not completed a post-secondary Mathematics course. Nineteen percent of the elementary Mathematics teachers considered themselves inadequately prepared to teach Mathematics. With regard to science, in Canada, Taylor (1982) found that 25% of the elementary school teachers did not have an equivalent of one fifth of a University academic year in science and 42% of the teachers felt inadequately prepared to teach science. Nationally, in Canada, among the elementary school teachers;

- 33% had no post-secondary Mathematics;
- 50% had no post-secondary science;
- 20% would avoid teaching science altogether if they had a choice, while 10% were undecided (Elliott, 1985).

In the same report, it is pointed out that, in England and Wales, the Department of Education and Science (DES), after inspecting 93 primary schools in 1982, found that in nearly 25% of the lessons observed, teachers showed signs of insecurity in the subject taught (Elliott, 1985).

The situation in Zimbabwe's primary schools is worse than that of Canada and Britain cited above. This is so because of the abundance of post-'O' level untrained teachers in Zimbabwe's primary schools which was almost 33% in 1996. The difference in the subjects offered at primary school and those offered at secondary school as well as the cursory coverage of content in primary college professional studies courses, are some of the factors aggravating the situation in Zimbabwe.

In Zimbabwe, Nyagura (1993) observed a general decline in the pass rate at Grade 7 in English and Mathematics, which could be attributed to the high percentage of untrained teachers, which was about 50% in 1983. Meanwhile, the school heads used staff meetings mainly to discuss administrative issues, giving little attention to curricular or instructional issues directed at improving the quality of teaching.

The issue of teacher deployment in the primary school has not received much scrutiny over the years in Zimbabwe. It has been assumed that each teacher should take his/her own class in all subjects, even in cases where the teacher is clearly unable to teach some of the subjects. Very few schools have ever tried the idea of teachers sharing classes. Some school heads are not even sure that the practice is allowed by the Ministry of Education. Even in the United States of America, the teaming of teachers within a particular grade level in a school is only practised at an informal level, between colleagues. "The advantage of these learning arrangements is that there is likely to be greater communication between the teachers and, therefore, greater integration and continuity of instruction across subject areas" (M.S.U., 1994, p.41).

The Michigan State University's Centre for Research in Teacher

Learning observed that:

> There is a popular belief that elementary school pupils should be taught in classes led by one teacher, but there is no great deal of data to assert or refute this assertion. What matters is consistent and predictable arrangements for the children (M.S.U., 1994, p.1).

There is a new programme in Zimbabwe's primary schools, the Better Schools Programme, initially funded by the Dutch, targeted at improving the quality of classroom practice through identification and rectification of teachers' weaknesses, and the improvement of teaching resources. Even in such efforts, little has been questioned about the primary school teacher's competency to effectively teach all the subjects that his/her pupils learn. This has been taken for granted, and all efforts to improve teaching have been made within the context of this assumption.

The question of what constitutes better teaching has always been highly debatable. This is fundamental in a study such as this one, which seeks to compare the effectiveness of different approaches to organising teaching. Chung (1999), Chipeta and Mannathoko (1993), Greetje van der Werf (1997), and Ndawi (2002), have attempted to explain the concept of effective teaching. The researcher uses these ideas to identify criteria for rating and comparing the teaching in the specialisation classes (the experimental group), and the conventionally taught classes (the control group).

The literature above has suggested to the researcher, the need to investigate the possibility of ameliorating the effects of poor subject mastery among primary school teachers, by trying out some subject specialisation and class sharing. This can be seen as a possible way of contributing to the on-going attempts at improving the quality of education delivery in the primary school.

The Sample

This study was sponsored by the Research Board of the University of Zimbabwe, which provided a very limited budget within which to carry out the field investigation. Consequently, a purposive sample of schools had to be selected. However, the researcher ensured that the sample included rural schools, urban former Group A schools, urban former Group B schools, and the different levels of infant, middle, and higher levels of the primary school classes. Thus, altogether, eight primary schools constituted the sample of the study. These were:

- two rural schools in the Midlands District of Chiwundura;
- two urban former Group A schools in Harare and one in Gweru;
- three urban former Group B schools in Harare, Chitungwiza, and Gweru respectively.

Altogether, nine teams comprising 38 teachers, 15 school administrators (i.e. heads, deputy heads, or teachers in charge of infant classes), 38 classes from these schools, with a total of 1 531 pupils, were involved in the study. The study did not attempt to investigate the issue of the gender of the teacher as a variable affecting the effectiveness of the teachers or the ability of the pupils.

During the course of the study, the researcher was made aware of a primary school in one rural district of Zimbabwe (Mashonaland East), which had been practising subject specialisation in Grades 5 to 7 for some time. The researcher visited the school to study what was going on. Records of the analyses of the Grade 7 results of this school for the period 1993 to 1995 were secured. The results of this longitudinal study were found to be so pertinent to the theme of this investigation, that the researcher sought the consent of the school to report their investigation and findings. These are, thus, reported below although the school was not part of the sample of this study.

Research Methodology

The study followed an Action Research paradigm in which a team of three, four or five teachers, in one school, pooled their classes. Each teacher taught the subject or subject cluster of his/her own choice to all the classes in the team, following a team timetable, adapted from a proforma supplied by the researcher. This was the specialisation group. The pool of classes in a team could be formed from the same grade or different grades. Each teacher's choice of subject(s) was based on the teacher's expertise, interest, or experience. For example, in a team, one teacher would teach English to all the classes, while another teacher taught Shona. A third teacher would teach Mathematics and Science, while the fourth teacher taught all the subjects classified as content subjects. These included Home Economics, Music, Art and Craft, Social Studies, Religious, and Moral Education, and Physical Education. The content subjects were allocated only two periods each per week, except for Social Studies, which had three periods per week; so they fitted very well into the suggested timetable. No extra teachers were required, as the teachers rotated in their classes. *(Appendices 1.1 and 1.2 show samples of the timetables)*

The researcher explained the approach to the schools, gave them guidelines, and left them to form and run their own teams but visited them periodically to monitor progress. After the teams had used the approach for three school terms, an evaluation was carried out to find out:

1. whether the pupils preferred this approach to the conventional one or not;
2. whether the teachers, the school administration and parents, preferred this approach or not;
3. whether better teaching in fact resulted; and
4. What problems were encountered and how they could be overcome.

It was considered that answers to these questions would indicate the extent to which this alternative was viable.

After the three terms, the classes taught using this specialisation approach were compared with their counterparts, in the same schools, being taught using the conventional approach. That were also compared with their own previous performances in previous mid-year and end of year tests, to find out if the results improved and better teaching in fact resulted. This causal comparative approach was used in this study, in preference to the more reliable experimental approach, because of the moral implications of the study. A researcher may not subject learners to approaches that are known or suspected to be inferior, for purposes of experimental comparisons. However, the researcher is justified to study the learners in their natural setting, as a control, and compare them with their counterparts subjected to what is deemed to be better treatment. (Borg & Gall 1983). It has to be acknowledged that the variable of teacher competency was difficult to control in the study, and may have affected the findings one way or the other, in the case of the conventional single-teacher classes.

Questionnaires, as well as interviews, were used to get information from teachers and school administrators. Parents were briefed at general meetings. The school heads, sometimes in focus groups, obtained the verbal and written responses of the parents. All pupils involved in the project were asked to indicate, by secret ballot, whether they preferred the approach or not. Document analysis was the major approach used in comparing the results of the pupils.

Findings of the Study

Analysis of the results of the study was guided by the four research questions that the study sought to answer.

Research Question 1: Does Subject Specialisation Promote Good Teaching?

ASPECT OF GOOD TEACHING PROMOTED	NUMBER OF TEACHERS INDICATING THE EXTENT TO WHICH IT IS PROMOTED			
	VERY MUCH	CONSIDERA-BLY	TO A SMALL EXTENT	NOT AT ALL
Better motivation of the pupils	22	11	3	0
Better motivation of the teachers	20	7	8	1
Exposing pupils to better teaching methods	22	10	3	0
Better utilisation of your special expertise	29	5	1	0
Reduction of the time you spend on preparation	27	5	2	1
Enhancing dialogue on the pupils among teachers	17	17	2	0
Enabling teachers to contribute more to the development of the teaching of the subject	27	8	1	0
Serious teaching of all subjects on the primary school curriculum	28	6	1	1
Better teaching in general	21	10	2	2
Better learning on the part of the pupils	18	13	4	1

The data in Table 1 reveals that:

- 33 out of the 36 teachers found that the approach promoted better motivation of the pupils either very much (22) or at least considerably (11) while also, 27 of the teachers found the approach to promote better motivation of the teacher, 20 saying "very much" and 7 saying "to a considerable extent";
- 32 out of 36 teachers found the approach to expose the pupils to better teaching methods;
- 32 out of 36 teachers found the approach to reduce the time they spent on preparation and planning either very much (27) or considerably (5);
- 34 out of 36 teachers said the approach promoted serious teaching of all the primary school subjects;
- 31 teachers felt there was at least considerably better teaching and learning in this approach than in the conventional one;

It can be seen from the above findings, that a large majority of the teachers in the project agreed that the specialisation approach promoted better teaching with respect to each of the identified criteria for good teaching given to them to consider. Thus, to the extent that our identified criteria are accurate predictors of good teaching, the teachers' responses suggest that they found the specialisation approach to promote better teaching than that realised in the conventional approach.

Research Questions 2 and 3

2. Would Pupils Prefer Subject Specialisation (by Their Teachers) to the Traditional Approach?
3. Which of the Two Approaches Would the Teachers and School Heads Prefer?

The data on these two questions is presented in Table 2 below. All the school heads, teachers-in-charge, subject teachers, and pupils on the

project were asked to indicate which one of the two approaches (the subject specialisation or the traditional approach) they preferred to use as their permanent approach. The teachers and heads indicated this information on their questionnaires, while the pupils voted by secret ballot. This exercise was carried out after the teams had run the programme for almost three school terms.

Table 2 shows the preferences summarised below.

- 1031 out of 1530 pupils (67,4%) preferred subject specialisation;
- 22 out of 37 teachers (59,5%) preferred subject specialisation;
- 9 out of 13 school heads/TICs (69%) preferred subject specialisation.
- It is also important to note that in 7 out of the 9 teams where the teachers preferred subject specialisation, the pupils also preferred it. However, in 2 out of 4 of the teams where the teachers did not prefer subject specialisation the pupils preferred it. There was no case where the teachers preferred specialisation and their pupils did not prefer it.
- It was also noted that all the 26 teachers who had initially volunteered into the project preferred the approach at the end, whereas the ones who did not prefer the approach were mainly those who had been instructed by their school heads to participate in the project.

Table 2
Preferences of Participant Pupils, Teachers, and School Heads for/against Subject Specialisation After Three Terms of Running the Project

TYPE OF SCHOOL	PUPILS' Preferences		TEACHERS' Preferences		D/ H, TIC, SCHOOL HEADS' Preferences	
	For Specialisation	Against Specialisation	For Specialisation	Against Specialisation	For Specialisation	Against Specialisation
N from Rural Schools	219	80	8	0	3	0
%	73,2	26,8	100	0	100	0
N from Urban Former Group B	548	197	11	7	5	1
%	73,6	26,4	61	39	83	17
N from Urban former Group A	264	222	3	8	1	3
%	54,3	45,7	27,3	72,7	25	75
Total N	1031	499	22	15	9	4
%	67,4	32,6	59,5	40,5	69	31

From these results, it can be seen that, in the three categories of the pupils, the teachers, and the school heads together with their teachers in charge, the majority of the participants preferred the specialisation approach to the conventional one. It was also seen that the teachers needed to volunteer into the new approach and not to be coerced into it, if they are to develop a sustained interest.

One interesting observation is that subject specialisation was more popular in the two rural schools than in the urban ones. Among the urban schools, it was more popular in the former Group B schools than in the former Group A schools. Perhaps this has something to do with the culture of the schools

Research Question 4: Did the Parents Prefer Subject Specialisation?

The school heads of the pilot schools informed the parents about the new project introduced to their children. Generally, parental reaction tended to depend on the manner in which the school head had presented the project to the parents and also on the level of trust the parents had on the school staff's mandate to make curricular decisions. Rural parents were the most receptive, followed by urban former Group B school parents. Two former Group A schools experienced some initial parental resistance. One urban parent, a highly placed education official, went to the extent of removing his children from the school which had started specialisation, to a neighbouring one, only to return them a year later after seeing far better results in the school where the project had been running. In most cases, the parents gave the project a chance and were pleased with the progress and occupation of their children.

Some parents from rural and urban former Group B schools even wrote letters to the project organisers, highly exalting the project, and indicating the advantages they saw, such as increased pupil occupation with homework. In general, the parents accepted the approach.

This implies that, if we are to predict the viability of the specialisation approach in the schools, this study has shown that, on the whole, parental resistance would not be a hindrance.

Research Question 5: Does Subject Specialisation Improve Pupils' Performance?

A comparison of the performance of 15 classes in their end-of-year tests just before the team teaching, with their end-of-year tests after team teaching shows a slightly higher level of attainment after team teaching. However, the difference was not high enough to be statistically significant, giving a t-value of 0,4327, which is well below the critical value of 2,048. From this finding, we could not say that the specialisation approach significantly improved the pupils' performance.

Notably, this comparison could not be too reliable as it had a serious variable of different tests having to be used on the pupils, as they were in two different grades over the period of the short longitudinal comparison. Nevertheless, the results clearly showed statistically significant gains in attainment in the schools where the programme took off and progressed smoothly and very low to negative gains where the programme had problems, hitches and teacher resistance.

One school (R1) had a four-class project team comprising Grades 1B, 3A, 5B and 5C. As the school had three Grade 1 classes, two Grade 3 classes, and two Grade 5 classes, it was possible to compare the performance of the subject specialisation class in Grade 1 with the performance of the other two Grade 1 classes that followed the traditional approach but sat the same examination. The Grade 3 specialisation class was also compared with the other Grade 3 (traditional approach) class as the two classes also sat the same examination. The classes were not streamed.

Grade 3A, the specialisation class had 47 pupils while Grade 3B, the traditional approach class had 44 pupils, making a total of 91 pupils. The

91 pupils were ranked together (i.e. No. 1 to 91). Table 3a shows the number of pupils from each class in the top 10, top 20, top 30... down to the top 91 respectively. This method of comparison was used because it clearly shows the discrepancy in question, and is also easy to comprehend for the reader who may not be mathematically minded. An alternative would have been to use overall aggregates but the use of bands of tens was considered to be clearer.

Table 3a
A Comparison of the Performance of the Pupils from a Subject Specialisation Class (Grade 3A) and a Conventional Approach Class (Grade 3B) in the Same End-of-Year Examinations

NUMBER OF PUPILS IN TOP.....	3A* SPECIALISATION	3B ORDINARY	TOTAL
10	7	3	10
20	15	5	20
30	20	10	30
40	26	14	40
50	29	21	50
60	35	25	60
70	38	32	70
80	43	37	80
86	47	39	86
91	47	44	91

The findings in Table 3a are self-explanatory. The specialisation class contributed much larger numbers of pupils in the top 10, top 20, top 30...right down to the top 80, as compared to the conventional class. Although the specialisation class had three pupils more than the other class, this did not seem to constitute an advantage, since the bottom 5 pupils were all from the conventional class. This comparison is strengthened by the fact that the two classes were not streamed, and that all the teachers were equally qualified diploma holders.

Table 3b compares the performance of the Grade 1 specialisation class (1B) with that of the other two Grade 1 traditional approach classes (1A and 1C). All the 95 Grade 1 pupils were ranked mixed, and the table shows the number of pupils from each class in the top 10, top 20, top 30... of the whole group.

The comparison of the Grade 1 classes shows Grade 1C, the conventional approach class, beating the specialisation class (Grade 1B) by one pupil in the first 20. However, when we get to the first 30, first 40, and first 50, the specialisation class leads again. The narrow difference at Grade 1 level might have resulted from the use of Grade 5 teachers, who might not have the necessary experience, in teaching the Grade 1 specialisation class. One has to consider the influence of other factors such as the effectiveness of the teachers in the conventional approach classes. The comparison also shows that the specialisation approach was more effective in Grade 3 than in Grade 1. This might suggest that infant classes would need their own specialisation teams, which do not mix them with the higher classes. These findings, on the whole, give the specialisation approach an edge over the conventional one with respect to pupil attainment in these tests. However, the overall finding was that the difference was not statistically significant.

Table 3b
A Comparison of the Performance of the Pupils from Grade 1B (Specialisation Class) With Those From Grade 1A and 1C (Conventional Approach Classes) in the Same End-of-Year Examination

NO. OF PUPILS IN TOP...	1B* SPECIALISATION	1A ORDINARY	1C ORDINARY	TOTAL
10	4	2	4	10
20	6	7	7	20
30	14	7	9	30
40	16	9	15	40
50	20	14	16	50
60	21	17	22	60
70	23	21	26	70
80	27	24	29	80
90	30	29	31	90
95	31	32	32	95

The school in Mutoko district mentioned above, which ran the subject specialisation project for Grades 5 to 7 from 1994, showed an interesting improvement of results as the approach got established in the school. Table 4 shows the breakdown of the pupils' results over a period of 3 years.

Table 4
Improvement of Grade 7 Results at a School in Mutoko Which Started Subject Specialisation in January 1994

Grade 7 Pass Rate 1993

NUMBER OF PUPILS IN EACH OF PERFORMANCE GRADES 1 - 9									
SUBJECT	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADE 9
ENGLISH	0	2	10	17	15	12	15	5	1
SHONA	0	3	7	25	28	9	4	1	0
MATHS	1	8	7	9	10	15	17	10	0
GENERAL PAPER	4	8	15	13	13	10	7	6	1

Compiled by T S Kamba

Grade 7 Pass Rate : 1994

NUMBER OF PUPILS IN EACH OF PERFORMANCE GRADES 1 - 9									
SUBJECT	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADE 9
ENGLISH	1	4	14	21	22	8	10	2	0
SHONA	0	7	33	22	11	5	4	1	0
MATHS	5	11	19	16	15	7	8	2	0
GENERAL PAPER	0	6	20	24	13	10	7	3	1

Grade 7 Pass Rate: 1995

NUMBER OF PUPILS IN EACH OF PERFORMANCE GRADES 1-9									
SUBJECT	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADE 9
ENGLISH	6	18	19	19	19	6	8	9	0
SHONA	1	10	38	41	7	3	3	2	0
MATHS	3	4	6	6	18	20	20	23	5
GEN. PAPER	3	12	18	22	16	17	13	4	0

Clearly there was a general improvement in the pass rate and in the attainment of better grades in each subject between 1993 (before specialisation) and 1994 when specialisation had started. The pattern continued in 1995 in all the other subjects except in Mathematics, where the pass rate went down drastically. The team explained that the Mathematics teacher transferred on promotion and was replaced by a temporary teacher who was ineffective. The team members had to intervene and assist to rescue the pupils. All in all, the results show a positive improvement. In this same school, out of the 101 pupils who

wrote the Grade 7 examination in 1998, only 11 attained more than 20 units aggregate. Thus, 90% attained an average of five units in each subject. (The best possible score in each subject is one unit, giving a best possible aggregate of four units in the whole examination).

Conclusion From the Study

The study established that:

- subject specialisation promotes better teaching, according to the teachers who took part in the project;
- the majority of the pupils, teachers, school heads, and teachers in charge, who took part in the specialisation trials, preferred the approach to the traditional one;
- most of the parents who saw their children involved in the specialisation approach supported the approach;
- there was some small improvement of pupil performance, as shown by their attainment in tests, but this was not large enough to be statistically significant.

On the basis of these findings, one would expect that subject specialisation at primary school could, if tried, be a viable alternative to the common conventional approach where one teacher takes the class in all the subjects on the curriculum. This could constitute useful grounds for trying the approach in more schools. As is the case with most curriculum innovations, there are likely to be some problems associated with the specialisation approach. Some of these problems were pointed out by the participants in the project.

Problems Associated With the Use of the Subject Specialisation Approach?

The teachers and heads cited a few problems that they encountered in the

implementation of the subject specialisation approach. Most problems were only experienced at the beginning when the teachers and pupils were still adjusting to the new approach. The schools were, in some cases, able to introduce their own modifications to solve their local peculiar problems. The major problems were those listed below:

- Those in the language areas tended to complain of a bigger marking load. Some teachers also had problems of having too much to be recorded in the record books;
- Some teachers were worried that the programme did not allow the teacher to 'spill over' into the time for the next lesson if pupils had not finished the work. This inflexibility was however commended by others as ensuring that each subject got its due time;
- Teacher-pupil relationship was reduced and teachers could not familiarise with their pupils adequately. However, some cited the advantage that a pupil did not suffer total disadvantage if he/she did not like a particular teacher or when a teacher did not like him/ her;
- Some heads complained about noise during the teachers' change-over of classes after a period;
- Problems of teacher transfers, student teachers, inadequate materials, hot seating, and lack of remediation arrangements were also cited as making STESS difficult to manage.

Advantages of the Subject Specialisation Approach

The participant teachers and school heads also cited a number of advantages that they had realised in trying the specialisation approach. Some of these are listed below:

- Most noted that the labour of preparation and planning was reduced, as the teacher prepared basically the same lesson for all classes, creating more time for other things.
- Teachers worked harder as they competed with other teachers on

the same pupils.

- The teachers shared both the pleasure of teaching the brighter pupils and the boredom of teaching the slow ones where classes were streamed.
- The pupils enjoyed the variety of exposure to different teachers and showed more motivation.
- All subjects received their rightful coverage as each teacher guarded his/her subjects.
- Children had more homework. The homework however, needed to be synchronised as it could become too much on some days when each teacher gave some homework to the same pupils.
- Some heads found the system easier to supervise.

Discussion

In considering the findings of this study, one takes cognisance of the small size of the sample, which tends to limit its external validity. However, certain interesting pointers do emerge which call for larger scale investigation and validation, funding permitting. The following need consideration:

1 The small study shows that the majority of the pupils, teachers, and school heads who were involved preferred subject specialisation on the part of teachers after experiencing it. This needs to be tested on a larger scale and if the same trend should be verified, it would be imperative to institutionalise the approach that the majority of the stakeholders prefer. Even if it worked out that only a considerable proportion of the stakeholders preferred STESS, there would be a case for facilitating its adaptation as an alternative to the traditional approach where the latter faces some constraints.

2 The small study appears to suggest that STESS could improve results. If this is verified on a large scale, the stakeholders would only too willingly adopt the approach.

3 The parents showed some interest in STESS as they saw their children to be busier with school work than usual. This is a positive aspect which would need to be ensured and exploited in all attempts to implement such a curricular innovation.

4 One important lesson learnt from this study was that, in introducing STESS in a school, teachers need to be thoroughly clear about the process and spirit of the approach. They need to be interested and the participants, if possible should volunteer to be involved. The use of coercion should be avoided, as the coerced teachers will have negative feelings from the start. They are likely to concentrate on identifying and moaning over the problems of the approach rather than on exploiting the advantages and creating solutions to problems, which arise. Fullam (1993, p.3) observes that; "It is simply unrealistic to expect that introducing reforms... in a situation which is basically not organised to engage in change, will do anything but give reform a bad name".

The teachers need to be fully oriented for STESS. They should see it as their project, not as imposed on them. Indeed more teachers will want to create their teams when they see a nuclear team showing zeal, enthusiasm and enjoyment of the project. This aspect probably explains why a few teams did not prefer the approach.

Like in any other curriculum innovation project, the support of parents noted above, is crucial. The school needs to sell the project to the parents and gain their approval. More than the teachers, the parents fear the unknown being introduced to their children, who have one chance of a life time in school. They fear that if the approach produces poor results, there may be no chance to correct its effect on their children's future, hence in explaining to the parents, it is necessary to show that there is no fundamental difference between STESS and the conventional approach

except in getting teachers to teach their children those subjects they can teach better. The urban former Group A schools that were less willing to adopt the approach did report some parental resistance mainly at the initial stages. This resistance disappeared when better pass rates were realised.

Transfers among team members appear to be the factor that affects STESS most negatively, as the replacements do not usually fit well into the team. Transfers in the middle of the year, would need to be minimised and only allowed where a replacement of similar specialisation is found. This may prove difficult to control and would thus, reduce the efficiency of the approach.

Perhaps more importantly, STESS has important implications for primary teacher education colleges. Primary teachers' colleges would need to get their students to specialise in a group of related subjects only, so that when they are deployed in schools, they would fit into a team where they only teach their specialist subject clusters. This aspect is likely to meet with administrative resistance. The deployment of teachers would need to be according to their specialisations, just as is done in secondary schools. The teachers in the field might need to be in-serviced to enable them to specialise in specific subject clusters. As the Michigan State University project 2061 blueprint (1994, p.41) puts it:

> The (primary) school site should be viewed as a pool of resources where the particular strengths and specialities of each teacher contribute to the functioning of the school as a whole... Principals would be responsible for ensuring a balance of specialists in the (school) community.

Although the general findings of this study appear to indicate that STESS would improve pupils' attainment in the primary school and perhaps the overall quality of learning, there are many other variables, which determine the effectiveness of the programme positively or negatively.

These include the smoothness of the running of the programme, the consistency of the teachers and the general enthusiasm of the teams. These variables also need to be investigated.

This mini-study did not find much evidence to suggest that STESS would be less effective in the infant classes than in the upper grades. However, as people seem to be particularly sensitive to the nursery needs of the infant pupils at this level, STESS could perhaps be introduced on a smaller scale, e.g. two teachers, where one teacher is unable to offer one of the subjects, such as a local language.

Recommendation

From the findings of this study with regard to teachers' interests, parents' enthusiasm, pupils' choices and pupils' attainments, STESS needs to be tried on a large scale. One would, however, recommend that teachers and schools be free to choose from a menu of alternatives, what approach they want to use. A school could even run more than one approach depending on its idiographic circumstances. One would venture to predict that the future trend in the primary schools could move towards STESS in the new millennium.

References

Borg, W. & Gall, M. *(1983). Educational research: An introduction.* (4th Edition). New York: Longman.

Clarke, J. (1999). Exploring school-based factors inhibitinga science teachers' implementation of curriculum innovation. *7th Annual SAARMSE Conference Proceedings.* Grahamstown, Rhodes University.

Chipeta, D. & Mannathoko, C. (1993). *Teaching practice evaluation.* Gaberon: University of Botswana.

Chung, F. (1999). An *investigation of the quality of primary education in a selection of Zimbabwe primary schools.* A Doctoral Thesis: University of Zimbabwe, Harare.

Elliott, J. (1993). *Reconstructing teacher education: Teacher development.* London: Falmer Press.

Elliott, M. (1995). Can primary teachers still be subject generalists? *Teaching and Teacher Education,* 1(4), 279-287.

Fullam, M. (1993). *Change forces, probing the depth of educational reform.* London: The Falmer Press.

Grretje van der Werf. (1997). Differences in school and instruction characteristics between high-, average-, and low-effective schools. *School Effectiveness and School Improvement,* 8(4), 430-448.

McBeath et al. (Edits) (1985). Schools speak for themselves. *Journal of the NUT,* University of Strathclyde.

Michigan State University (1994). *A blueprint for the education of Project 2061 Science Teachers.* East Lansing: National Centre for Research in Teacher Learning.

Mortimore, P. (1998). Improving schools (introduction). *Improving Schools*, 1, p.3.

Nyagura, L. M. (1993). Quantitative developments, quality and equity concerns in Zimbabwean primary and secondary education sectors. *Zimbabwe Journal of Educational Research,* 5(3), 21-40.

Ndawi, O. P. (2002). *An investigation into the relevance of the subject studies in the teacher education curriculum in Zimbabwe.* A Doctoral Thesis, University of Zimbabwe, Harare.

Zeichner, K. & Tabachnich, R. (1991). *Inquiry-oriented teacher education.* London: Falmer Press.

APPENDIX

Append. (T.I) Time Table Proposal for Team of 2 X Grades 5 and 2 X Grade 6

		1	2	3	4	5		6	7	8	9
	CLASS	7.25 8.05	8.05 9.25	8.45 9.25	9.25 10.05	10.05 10.25		10.40 11.10	11.10 11.40	11.40 12.10	12.10 12.40
MONDAY	5A 5B 6A 6B	ENGLISH SHONA MATHS S/STUDIES	ENGLISH SHONA MATHS S/STUDIES	SHONA ENGLISH S/STUDIES MATHS	SHONA ENGLISH S/STUDIES MATHS	MUSIC	B	MATHS S/STUDIES ENGLISH SHONA	MATHS S/STUDIES ENGLISH SHONA	S/STUDIES MATHS SHONA ENGLISH	S/STUDIES MATHS SHONA ENGLISH
TUESDAY	5A 5B 6A 6B	MATHS ART SHONA ENGLISH	E.SCI ART SHONA ENGLISH	ART MATHS ENGLISH SHONA	ART E.SCI ENGLISH SHONA	PE PE MUSIC PE	R	SHONA ENGLISH MATHS ART	SHONA ENGLISH S.SCIE ART	ENGLISH SHONA ART MATHS	ENGLISH SHONA ART E.SCI
WEDNESDAY	5A 5B 6A 6B	ENGLISH SHONA MATHS RME	SHONA ENGLISH RME MATHS	MATHS RME ENGLISH SHONA	RME MATHS SHONA ENGLISH	PE PE PE MUSCI	E	SHONA ENGLISH RME/MUSIC MATHS	SHONA ENGLISH RME/MUSIC MATHS	MATHS RME/MUSIC ENGLISH SHONA	RME/MUSIC MATHS SHONA ENGLISH
THURSDAY	5A 5B 6A 6B	E.SCI RME ENGLISH SHONA	E.SCI S/STUDIES ENGLISH SHONA	RME E.SCI SHONA ENGLISH	S/STUDIES E.SCIE SHONA ENGLISH	PE MUSIC PE PE	A	ENGLISH SHONA E.SCI RME	ENGLISH SHONA E.SCI S/STUDIES	SHONA ENGLISH RME E.SCI	SHONA ENGLISH S/STUDIES E.SCI.
FRIDAY	5A 5B 6A 6B	SHONA ENGLISH MATHS H .ECON	SHONA ENGLISH E.SCI H.E.	ENGLISH SHONA HE MATHS	ENGLISH SHONA HE E.SCI		K	MATHS HE SHONA ENGLISH	E.SCI HE SHONA ENGLISH	HE MATHS ENGLISH SHONA	HE E.SCI ENGLISH SHONA

NB. If there is assembly (7.25-7.45) you can cancel 5th period. So that the first 4 periods are: 7.45-8.25; 8.25-9.05; 9.05-945 and 9.45-10.25

Notes for (T.T.I)

* Period 5 is 20 minutes (i.e. 0.5 period).

1. Try the single periods on Wednesday and compare with the double periods to see which is better.
2. Each teacher takes P.E. with his/her class.
3. The 5B and 6A teachers take the music teacher's class when the music teacher is taking their classes between 10.05 and 10.25.
4. On Wednesdays, after break, Music and RME can be 20 minutes each or alternate on a weekly basis (i.e. this week RME, next week Music).
5. The 44 periods are more than the normal but the teacher can "breathe" during practical work.

Breakdown

TEACHER	SUBJECTS	PERIODS	TOTAL PERIODS FOR TEACHERS
Mr I	English PE	10 x 4 = 40 1.5 x 1 = 1.5	41.5
Mrs II	Shona PE	10 x 4 = 40 1.5x 1 = 1.5	41.5
Mr III	Maths Science PE	6 x 4 = 24 4 x 4 = 16 1.5 x 1 = 1.5	41.5
Miss IV	Social Studies Art HE RME Music	3 x 4 = 12 2 x 4 = 8 2 x 4 = 8 2.5x4 = 10 1.5 x 4 = 6	44

APPENDIX T.2

Possible Time Table Grades 3 (T.T.2)

	7.45	8.15	8.45	9.15	9.45		10..00	10.30	11.00	11.30	12.00
MONDAY	MATHS ENGLISH SHONA HE	MATHS ENGLISH SHONA HE	ENGLISH MATHS HE SHONA	ENGLISH MATHS HE SHONA	PE PE PE PE	B	SHONA HE MATHS ENGLISH	SHONA HE MATHS ENGLISH	MATHS S/STUDIES ENGLISH SHONA	HE SHONA ENGLISH MATHS	HE SHONA ENGLISH MATHS
TUESDAY	ENGLISH SHONA MUSIC MATHS	ENGLISH SHONA S/STUDIES SC.	SHONA ENGLISH MATHS MUSIC	SHONA ENGLISH SC. S/STUDIES	S/STUDIES MATHS SHONA ENGLISH	R	MUSIC MATHS ENGLISH SHONA	S/STUDIES SC. ENGLISH SHONA	MATHS MUSIC SHONA ENGLISH	SC. S/STUDIES SHONA ENGLISH	 STUDY
WEDNESDAY	ASSEMBLY	SC. ENGLISH SHONA ART	SC. ENGLISH SHONA RME	ART SC. ENGLISH SHONA	RME SC. ENGLISH SHONA	E	SHONA ART SCI. ENGLISH	SHONA RME SC. ENGLISH	SHONA ENGLISH S/STUDIES MATHS	ENGLISH SHONA ART SCI.	ENGLISH SHONA RME SC.
THURSDAY	SHONA MUSIC MATHS ENGLISH	SHONA S/STUDIES MATHS ENGLISH	ENGLSH SHONA MUSIC MATHS	ENGLISH SHONA S/STUDIES MATHS	PE PE PE PE	A	MATHS ENGLISH SHONA MUSIC	MATHS ENGLISH SHONA S/STUDIES	MUSIC MATHS ENGLISH SHONA	S/STUDIES MATHS ENGLISH SHONA	 STUDY/ TESTS
FRIDAY	ART ENGLISH SHONA MATHS	RME ENGLISH SHONA SC.	ENGLISH ART MATHS SHONA	ENGLISH RME SC. SHONA	ENGLISH SHONA MATHS S/STUDIES	K	SHONA MATHS ART ENGLISH	SHONA SC. RME ENGLISH	MATHS SHONA ENGLISH ART	SC. SHONA ENGLISH RME	 STUDY/ TESTS

Notes for (T.T.2)

TEACHER	SUBJECTS	PERIODS	TOTAL PERIODS FOR TEACHERS
Teacher I	Maths Science	7 4	11 x 4 =44
Teacher II	English		11 x 4 =44
Teacher III	Shona		11 x 4 =44
Teacher IV	H. Economics Music Art S/Studies RME PE	2 2 2 3 2 2	2 extra periods for each teacher

* Three periods remain for study or use by any teacher by arrangement with class teacher.

* The study periods can also be used for tests i.e. giving the same test to all classes.